

## ABSTRACT OF THE DISCLOSURE

An item velocity monitoring system is provided which interfaces with a consumer retail store that has several cash registers that are tied into a "point of sale" store controller. The item velocity monitoring system is capable of detecting when sales (or other movement activities) of an item are occurring too quickly, or too slowly. The item velocity monitoring system is first "trained" in a learning mode of operations, during which item patterns and group patterns are evaluated and placed into a pattern database. The system then compares the observed item velocity to its model probability velocity, and if the observed item velocity deviates beyond the statistical model, a "velocity event" is generated, declaring one of the above selling "too quick" or "too slow" conditions. Once a velocity event is detected, an event handling routine displays the event, and can transmit the event information over a network (including the INTERNET) to a remote computer for additional analysis or record keeping. A "Loyalty Out-of-Stock System," (LOSS) is incorporated in the above item velocity monitoring system which automatically detects when items for sale are out-of-stock (OOS), discovers the reasons for these "stock-outs," and determines how customers react to these stock-outs. The LOSS operates on store data and models the expected item movement rate for each item under varying time-of-day, day-of-week, price, promotion, season, holiday, and market conditions; detects items that are moving abnormally slowly, thereby identifying items that may be improperly displayed; provides early warning that an item may go out-of-stock (OOS) by detecting items with abnormally high movement; detects and reports on items that are OOS at retail stores; summarizes OOS events for the store and retail chain management, and for suppliers, thereby identifying items that are over-stocked (too few OOS events), under-stocked (too many events), badly re-stocked (too long events); analyzes the OOS events to find patterns that explain why OOS's are occurring; and determines the impacts of these OOS events on store customers, thereby measuring losses to the retailer and supplier, and establishing the loyalty of consumers to the item, brand, and chain.